

WHAT IS CLAIMED IS:

1. A transceiver operable to process Bluetooth and wireless local area  
5 network (wireless LAN) signals, the transceiver comprising:
  - a radio-frequency unit;
  - a digital baseband unit configured to generate a mode control signal indicative of  
Bluetooth or wireless LAN operation;
  - 10 a dual-mode filter and amplifier unit having a first Bluetooth-compatible mode  
and a second wireless LAN mode, the dual-mode filter and amplifier unit coupled to the  
radio frequency unit and digital baseband unit and configured to select an operating  
mode from the first and second modes responsive to said mode control signal.
2. A transceiver according to claim 1, wherein the dual-mode filter and  
15 amplifier unit comprises a dual-mode filter having at least one component in use during  
both the Bluetooth-compatible mode and the wireless LAN mode.
3. A transceiver according to claim 1, wherein the dual-mode filter and  
amplifier unit comprises a dual-mode amplifier having at least one component in use  
20 during both the Bluetooth-compatible mode and the wireless LAN mode.
4. A transceiver according to claim 2, wherein said at least one component  
includes a transistor.
- 25 5. A transceiver according to claim 3, wherein said at least one component  
includes an operational amplifier.
6. A dual-mode complex filter having a first Bluetooth-compatible mode, and  
having a second 802.11b WLAN mode, the filter comprising:
  - 30 at least one adjustable component operable to select said first Bluetooth-compatible mode or said second 802.11b-WLAN mode.

7. A dual-mode complex filter according to claim 6, wherein said filter, during operation in said first Bluetooth mode, operates to pass signals having a frequency around 2 MHz and during operation in said second 802.11b WLAN mode, operates to 5 pass signals having a frequency around DC.

8. A dual-mode complex filter according to claim 6, wherein said filter, during operation in said first Bluetooth mode, operates to pass signals over a bandwidth of approximately 1MHz and, during operation in said second 802.11b WLAN mode, 10 operates to pass signals over a bandwidth of approximately 7.5 MHz.

9. A dual-mode complex filter according to claim 1, wherein said adjustable component comprises a resistor.

15 10. A dual-mode amplifier unit having a first Bluetooth-compatible mode, and having a second 802.11b WLAN mode, the amplifier comprising:

at least a first stage having an operational amplifier;  
at least a first feedback component; and  
at least a first switch coupled to said feedback component and said 20 operational amplifier having a first mode and a second mode, such that in said first mode the dual-mode amplifier unit is operable in said first Bluetooth-compatible mode and the feedback component is disconnected from said operational amplifier and in said second mode the dual-mode amplifier unit is operable in said second 802.11b WLAN mode and the feedback component is coupled between an input and an output 25 port of said operational amplifier.

11. A dual-mode amplifier unit according to claim 10, wherein said first feedback component includes a resistor.

30 12. A dual-mode amplifier unit according to claim 10, further comprising a capacitor coupled to said first feedback component and said first switch.

13. A dual-mode amplifier unit according to claim 10, wherein during operation in said first Bluetooth-compatible mode, said first stage operates as a limiter.
- 5 14. A dual-mode amplifier unit according to claim 10, wherein during operation in said second 802.11 WLAN mode, said first stage operates as a voltage gain amplifier.
- 10 15. A dual-mode amplifier unit according to claim 10, further comprising a capacitor coupled to an output of said operational amplifier and at least a second switch coupled to said capacitor, such that during operation in said first Bluetooth compatible mode, said capacitor at least in part determines an AC coupling corner frequency of said first stage.
- 15 16. A transceiver including a dual-mode analog baseband having reduced IC chip area, the transceiver including a filter according to claim 6 coupled to an amplifier according to claim 10.
- 20 17. A transceiver according to claim 16 wherein said filter and said amplifier are formed on a single semiconductor substrate.
- 25 18. A method for implementing a transceiver operable to process Bluetooth signals and wireless local area network (wireless LAN) signals, the method comprising:  
determining if Bluetooth or wireless LAN operation is desired;  
generating a control signal operable to indicate either Bluetooth operation or wireless LAN operation, based on said determination; and  
adjusting at least one component of a dual-mode filter, based on said generated control signal.
- 30 19. A method according to claim 18, further comprising adjusting at least one component of a dual-mode amplifier based on said generated control signal.

20. A method according to claim 18, wherein said determination occurs in a digital baseband chip.

5 21. A method to implement a dual-mode complex filter having a first Bluetooth-compatible mode, and having a second 802.11b WLAN mode, comprising:

providing at least one adjustable component operable to select said first Bluetooth-compatible mode or said second 802.11b-WLAN mode.

10 22. A method according to claim 21, further comprising:

applying a first control signal to said adjustable component, placing the adjustable component in the first mode; and

applying a second control signal to said adjustable component, placing the adjustable component in the second mode.

15 23. A method to implement a dual-mode amplifier unit having a first Bluetooth-compatible mode, and having a second 802.11b WLAN mode, the method comprising:

providing at least a first stage having an operational amplifier;

providing at least a first feedback component; and

20 coupling at least a first switch having a first mode and a second mode to said feedback component and said operational amplifier, such that in said first mode the dual-mode amplifier unit is operable in said first Bluetooth-compatible mode and the feedback component is disconnected from said operational amplifier and in said second mode the dual-mode amplifier unit is operable in said second 802.11b WLAN mode and  
25 the feedback component is coupled between an input and an output port of said operational amplifier.

24. A method according to claim 23, further comprising a capacitor coupled to said first feedback component and said first switch.

25. A method to provide an IC with reduced chip area, the IC including a dual-mode analog baseband, comprising implementing a filter according to the method of claim 21, implementing an amplifier according to the method of claim 23 and coupling said filter and said amplifier.